

CLAIMS

What is claimed and desired to be secured by Letters Patent is as follows:

1. A patient fluid management interface system, which comprises:
 - (a) a primary fluid transfer element including a patient contact surface, a plurality of passages communicating with said contact surface, an outer surface and a perimeter;
 - (b) a film material drape placed over said primary fluid transfer element in contact with the outer surface thereof and adapted for contact with the patient around the perimeter of said primary fluid transfer element;
 - (c) vacuum force communicating means for distributing a sub-atmospheric, negative vacuum force through said primary fluid transfer element to said patient contact surface thereof;
 - (d) fluid differentiating means for drawing gas into said interface system and containing and directing liquid within said interface system;
 - (e) a vacuum source; and
 - (f) a vacuum tube with a proximate end connected to the primary fluid transfer element and a distal end connected to said vacuum source.

2. The interface system according to claim 1, which includes:

(a) said force communicating means comprising a secondary fluid transfer element including a contact surface, a plurality of passages communicating with said contact surface and an outer surface; and

(b) mounting means for mounting said secondary fluid transfer element on said primary fluid transfer element.

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3. The interface system according to claim 2, which includes:

(a) said vacuum tube intersecting said secondary fluid transfer element at the outer surface thereof;

(b) said drape comprising a first drape; and

(c) a second film material drape placed over said secondary fluid transfer element and said intersection of said tube therewith.

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4. The interface system according to claim 1, which includes:

(a) said primary fluid transfer element comprising an open-cell foam material.

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5. The interface system according to claim 4 wherein said primary fluid transfer element comprises hydrophobic polyurethane ether.

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The interface system according to claim 1, which includes:

(a) said primary fluid transfer element having a first, larger size and configuration under ambient atmospheric pressure and a second, smaller, compressed size and configuration under sub-atmospheric pressure.

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7. The interface system according to claim 1 wherein:

(a) said drape includes an inner, adhesive contact layer.

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8. The interface system according to claim 1, which includes:

(a) said drape being applied non-adhesively to said patient.

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9. The interface system according to claim 8, which includes:

(a) said drape being retained on said patient by a pressure gradient across said drape formed by a sub-atmospheric pressure within said interface system and an ambient, atmospheric pressure external to said interface system.

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10. The interface system according to claim 8, which includes:

(a) said drape being wrapped around a portion of the patient.

11. The interface system according to claim 1, which includes:

(a) a fluid source, and

(b) fluid source tubing with a proximate end connected to said first fluid transfer element and a distal end connected to said fluid source.

12. The interface system according to claim 11, which includes:

- (a) said fluid source comprising a first fluid source connected to said fluid source tubing; and
- (b) a second fluid source connected to said fluid source tubing.

a 17 13. The interface system according to claim 12, which includes:

- (a) said fluid source tubing mounting a catheter on its proximate end for insertion in said fluid transfer element.

14. The interface system according to claim 11, which includes:

- (a) an injection port mounted on and selectively fluidically connected to said fluid source tubing.

15. The interface system according to claim 11, which includes:

- (a) said fluid source comprising the atmosphere; and
- (b) a vent connected to the fluid source tubing distal end for selectively communicating the atmosphere with the fluid source tubing.

16. The interface system according to claim 11, which includes:

- (a) an inlet access film material drape placed over said interconnection of said fluid source tubing proximate end and said first fluid transfer element.

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The interface system according to claim ~~2~~^{33 12}, which includes:

- (a) said secondary fluid transfer element comprising an open-cell foam material.

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The interface system according to claim ~~17~~¹⁴ wherein said secondary fluid transfer element comprises hydrophobic polyurethane ether.

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The interface system according to claim 1, which includes:

- (a) a P-trap formed in said vacuum tube.

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The interface system according to claim ~~19~~⁹, which includes:

- (a) said suction tube including a proximate section with an end located adjacent to said P-trap and a distal section with an end located adjacent to said P-trap; and
- (b) said vacuum tube ends being telescopically, adjustably interconnected.

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The interface system according to claim ~~19~~⁹, which includes:

- (a) a tube shaper including a plurality of tube engagement means, each said tube engagement means being adapted to retain a portion of the tube at a predetermined location to form said P-trap.

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The interface system according to claim ~~21~~³⁸ wherein said tube shaper includes a back panel and said tube engagement means comprises a plurality of pins projecting from said back panel, said pins being arranged in multiple rows and columns.

23. A method for interfacing a motorized pump with a patient for fluid management, which comprises the steps of:

- (a) applying a primary fluid transfer element with a contact surface, an outer surface and a perimeter to the patient with the contact surface connected to the patient;
- (b) providing a plurality of fluid passages extending through said primary fluid transfer element from the contact surface thereof;
- (c) covering said primary fluid transfer element with a drape comprising a material film;
- (d) engaging the patient around the perimeter of the primary fluid transfer element with said drape;
- (e) providing a vacuum suction tube with a proximate end connected to said primary fluid transfer element and a distal end connected to said motorized pump; and
- (f) communicating a sub-atmospheric, vacuum pressure through said motorized pump to said primary fluid transfer element.

24. The method according to claim 23, which includes the additional steps of:

- (a) applying a secondary fluid transfer element to said primary fluid transfer element; and
- (b) embedding said vacuum suction tube proximate end in said secondary fluid transfer element.

25. The method according to claim 23, which includes the additional step of:

- (a) providing a P-trap in said vacuum suction tube.

26. The method according to claim 23, which includes the additional step of:

(a) non-adhesively applying said drape to said patient.

27. The method according to claim 26, which includes the additional step of:

(a) retaining said drape on said patient by a pressure gradient across said drape formed by a sub-atmospheric pressure within said interface system and an ambient, atmospheric pressure external to said interface system.

28. The method according to claim 26, which includes the additional step of:

(a) wrapping said drape around a portion of the patient.

29. The method according to claim 23, which includes the additional step of:

(a) providing a fluid source; and

(b) providing fluid source tubing with a proximate end connected to said first fluid transfer element and a distal end connected to said fluid source.

30. The method according to claim 29, which includes the additional step of:

(a) providing a connection to the ambient atmosphere as said fluid source.

31. The method according to claim 25, which includes the additional steps of:

- (a) forming said P-trap with proximate distal sections of said vacuum suction tube; and
- (b) telescopically adjustably interconnecting said proximate and distal sections of said vacuum suction tube.

32. The method according to claim 25, which includes the additional steps of:

- (a) providing a tube shaper;
- (b) protruding a plurality of pins from said tube shaper; and
- (c) wrapping said vacuum suction tube around said pins to form said P-trap.

and
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